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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,387

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Sang-Jin Yoon

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EXAMINER

MCCOMMAS, STUART S

ART UNIT

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2629

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,387	<b>Applicant(s)</b> YOON, SANG-JIN	
	<b>Examiner</b> Stuart McCommas	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-13, 18, 19, 24, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-13, 18, 19, 24, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/31/2010 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9, 11-12, 19 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment 8 of Takayama (United States Patent 6,249,087) in view of embodiment 2 of Takayama and further in view of Wani et al. (United States Patent 6,768,478), hereinafter referenced as Wani.

Regarding claim 9, Takayama in embodiment 8 discloses a plasma display device comprising:

a plasma display panel (PDP) having scan electrodes and sustain electrodes to form a plurality of electrode pairs (figure 1);

a first driving circuit (scan driver 86) configured to successively apply a first signal and a second signal to the scan electrodes before an address period of at least one sub field (figure 1; figure 15);

where the first signal comprises an initialing pulse rising to a first maximum voltage value, and a first decreasing pulse falling to a first minimum voltage value (figure 15), and the second signal comprises an enhancing pulse rising to a second maximum voltage value and a second decreasing pulse falling to a second minimum voltage value (figure 15).

However Takayama fails to disclose a second maximum voltage value less than the first maximum voltage value and a second minimum voltage value greater than the first minimum voltage value.

In embodiment 2 Takayama discloses a second maximum voltage value less than the first maximum voltage value for two pulses (figures 7-8; tables 7-8).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify embodiment 8 of Takayama with embodiment 2 of Takayama by specifically providing a second maximum voltage value less than the first maximum voltage value for the purpose of precisely controlling discharge in a display to improve the quality of the display.

In a similar field of invention Wani discloses a second minimum voltage value greater than the first minimum voltage value (figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Wani by specifically providing a second minimum voltage value greater than the first minimum voltage value for the purpose of using the first negative pulse to create necessary charge to prepare for the scanning of the PDP for the address period to improve the quality of the display.

Regarding claim 11, embodiments 8 and 2 of Takayama, and Wani, the combination discloses everything as applied above, further embodiment 2 of Takayama discloses that a difference between the first max voltage value and the second max voltage value is substantially the same as a sustain voltage applied to the scan electrodes or sustain electrodes in sustain period of at least one sub-field (figures 7-8; tables 7-8).

Regarding claim 12, embodiments 8 and 2 of Takayama, and Wani, the combination discloses everything as applied above, further embodiment 2 of Takayama discloses that a slope of the initialing pulse is substantially the same as a slope of the enhancing pulse (figure 7).

Regarding claim 19, Takayama discloses a method of driving a plasma display panel based on a plurality of sub-fields, the plasma display panel having a plurality of discharge cells, and each of the cells having a scan electrode and a sustain electrode (figure 1), comprising:

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providing a first signal including an initialing pulse followed by a first decreasing pulse to the scan electrode during an initialization period of at least one sub-field (figure 15);

providing successively a second signal including an enhancing pulse followed by a second decreasing pulse to the scan electrode after providing the first signal (figure 15);

providing a scan signal to the scan electrode during an address period of the at least one sub-field, the scan signal being provided after the second signal in the at least one subfield (figure 15);

providing at least one sustain signal to at least one of the scan electrode or the sustain electrode during a sustain period of the at least one sub-field (tables 7-8; figures 7-8);

wherein the initialing pulse of the first signal has a first peak voltage value and the enhancing pulse of the second signal has a second peak voltage value (figures 15).

However Takayama fails to disclose wherein the first peak voltage value is greater than the second peak voltage value, and wherein a lowest voltage of the first decreasing pulse is less than a lowest voltage of the second decreasing pulse.

In embodiment 2 Takayama discloses wherein the first peak voltage value is greater than the second peak voltage value (figures 7-8; tables 7-8).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify embodiment 8 of Takayama with embodiment 2 of

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Takayama by specifically providing wherein the first peak voltage value is greater than the second peak voltage value for the purpose of precisely controlling discharge in a display to improve the quality of the display.

In a similar field of invention Wani discloses wherein a lowest voltage of the first decreasing pulse is less than a lowest voltage of the second decreasing pulse (figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama with Wani by specifically providing wherein a lowest voltage of the first decreasing pulse is less than a lowest voltage of the second decreasing pulse for the purpose of using the first negative pulse to create necessary charge to prepare for the scanning of the PDP for the address period to improve the quality of the display.

Regarding claim 26, embodiments 8 and 2 of Takayama, and Wani, the combination discloses everything as applied above, further Wani discloses wherein the second minimum voltage value is a voltage between a ground voltage and the first minimum voltage value (figure 4).

Regarding claim 27, embodiments 8 and 2 of Takayama, and Wani, the combination discloses everything as applied above, further embodiment 8 of Takayama discloses the second maximum voltage (figure 15), and Wani discloses wherein the second decreasing pulse directly falls from the maximum voltage value to the second minimum voltage value (figure 4).

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4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment 8 of Takayama in view of embodiment 2 of Takayama, and Wani and further in view of Kang et al. (United States Patent Application Publication 2002/0033675), hereinafter referenced as Kang.

Regarding claim 13, embodiments 8 and 2 of Takayama, and Wani, the combination discloses everything as applied above, further Takayama in embodiment 2 discloses a second signal (figures 7-8), however the combination fails to disclose wherein a ground voltage is applied to the sustain electrodes when the signal is applied to the scan electrodes.

In a similar field of invention Kang discloses that a ground voltage is applied to the sustain electrodes when the signal is applied to the scan electrodes (figure 7).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify embodiments 8 and 2 of Takayama and Wani with Kang by specifically providing that a ground voltage is applied to the sustain electrodes when the signal is applied to the scan electrodes for the purpose of providing uniform wall charge during the period prior to displaying an image to improve the quality of the display (paragraph 73).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment 8 of Takayama in view of embodiment 2 of Takayama and Wani, and further in view of Takayama (United States Patent 6,747,614), hereinafter referenced as 614.



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Regarding claim 10, Takayama and Wani, the combination discloses everything as applied above, however the combination fails to disclose wherein the second maximum voltage value is lower than a sustain voltage applied to the scan electrodes or applied to the sustain electrodes in a sustain period of the at least one subfield.

In a similar field of invention 614 discloses wherein the second maximum voltage value is lower than a sustain voltage applied to the scan electrodes or applied to the sustain electrodes in a sustain period of the at least one subfield (figure 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama and Wani with 614 by specifically providing wherein the second maximum voltage value is lower than a sustain voltage applied to the scan electrodes or applied to the sustain electrodes in a sustain period of the at least one subfield for the purpose of precisely controlling discharges in a display to improve the quality of the display (column 6 lines 12-32).

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment 8 of Takayama in view of embodiment 2 of Takayama, Wani and further in view of Homma (United States Patent Application Publication 2002/0063663), hereinafter referenced as Homma.

Regarding claim 18, embodiments 8 and 2 of Takayama and Wani, the combination discloses everything as applied above, however the combination fails to disclose wherein a voltage substantially similar to a sustain voltage provided to the scan

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electrodes or the sustain electrodes during a sustain period is provided to the sustain electrodes when the first decreasing pulse is applied to the scan electrodes.

In a similar field of invention Homma discloses wherein a voltage substantially similar to a sustain voltage provided to the scan electrodes or the sustain electrodes during a sustain period is provided to the sustain electrodes when the first decreasing pulse is applied to the scan electrodes (paragraphs 60-61; figure 9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of embodiments 8 and 2 of Takayama and Wani with Homma by specifically providing wherein a voltage substantially similar to a sustain voltage provided to the scan electrodes or the sustain electrodes during a sustain period is provided to the sustain electrodes when the first decreasing pulse is applied to the scan electrodes for the purpose of conserving power and improving brightness by using a common voltage value during both the initialization period and the sustaining period (paragraph 38).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment 8 of Takayama in view of embodiment 2 of Takayama and Wani and further in view of Homma (United States Patent Application Publication 2002/0063663), hereinafter referenced as Homma.

Regarding claim 24, embodiments 8 and 2 of Takayama and Wani, the combination discloses everything as applied above, however the combination fails to

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disclose wherein a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode.

In a similar field of invention Homma discloses that a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode (paragraphs 60-61; figure 9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify embodiments 8 and 2 of Takayama and Wani with Homma by specifically providing wherein a sustain voltage is provided to the sustain electrode when the first signal is provided to the scan electrode for the purpose of initiating a priming discharge and controlling wall charges to increase the quality of the display (paragraphs 12-13).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-25 have been considered but are believed to be answered by and therefore moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571)272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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